The Largest Cultivated Tree (Eucalyptus Globulus) In the United States—(Story Page 20)

Second Street Tree & Utility Conference—Cleveland, Ohio, March, 7, 8, 1957

Elm Leaf Beetle and Dutch Elm Disease — *John G. Matthysse*

Coordination of Phone Lines With Trees — *F. Woodland*

Jan.-Feb. 1957 — *The Journal of American Arboriculture* — Vol. 17—No. 2

Self-Feeding...

Only the new McCulloch D-44 direct-drive chain saw cuts with a *light touch* – it feeds itself into the wood! Lightweight, compact and perfectly balanced, the D-44 easily outperforms all other direct-drive saws. Only $238 up.

Try it.

McCULLOCH

McCULLOCH

Los Angeles 45, California

5-6004

Jan.-Feb. 1957 **Journal of the National Arborist Association** Vol. 17—No. 2

EDWARD H. SCANLON, Editor
7621 Lewis Rd., Olmsted Falls, Ohio
ADams 5-2357

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; A COUNTRY WITHOUT TREES IS HOPELESS."

ADVISORY COUNCIL

L. C. CHADWICK
Professor of Horticulture
Ohio State University, Columbus, O.

H. DANA BOWERS
State Landscape Engineer
Division of Highways
Sacramento, Calif.

MAUNSELL VAN RENSSELAER
Director, Saratoga Horticultural Foundation
Saratoga, Calif.

NOEL B. WYSONG
Forester, Cook County Forest Preserve, River Forest, Ill.

PAUL E. TILFORD
National Arborist Association
Wooster, Ohio

FORREST C. STRONG
Assistant Professor of Botany
Michigan State College
East Lansing, Mich.

CHARLES F. IRISH
Arborist, Cleveland, Ohio

P. P. PIRONE
New York Botanical Garden
New York, N. Y.

RALPH D. CORNELL
Landscape Architect, Los Angeles, Calif.

CURTIS MAY
Principal Pathologist, Bureau of Plant Industry Station, United States Department of Agriculture, Beltsville, Maryland

KARL DRESSEL
Associate Professor Forestry, Michigan State College, East Lansing, Mich.

MALCOLM A. MCKENZIE
Director, Shade Tree Laboratories, University of Massachusetts, Amherst, Mass.

EMANUEL FRITZ
Associate Professor of Forestry, University of California, Berkeley, Calif.

Out On A Limb

CITY ARBORISTS SHOULD KNOW ALL ABOUT TREES HE USES

Every tree known to man is defective in one or more areas of its structural or physiological makeup—to which can be added, addiction to some bug or disease. Because of this no single tree can or should be used to the exclusion of all others. This practice in the past has built up the almost overpowering conflicts, maintenance and removal problems that exist today on the streets of nearly every village, town and city in the United States—and probably in every country with an established culture of ornamental tree use.

These conflicts are not confined solely to city streets but extend even more so to private properties. People unknowingly have planted trees that were offered to them, in glowing advertisements, and the trees, to their consternation grew and grew until they had attained proportions all out of scale with a huge majority of average city lots. Every advertisement should inform the buyer of the mature proportions the tree will attain, but of course this would not be conducive to volume sales of some of the fast growing novelties that are being widely heralded today as the answer to all tree needs. How can anyone predict the form or size that a selected seedling will make in the future, and how, by all that's holy can a plant patent be granted for such a big question mark. The problems these unknowns will create in the future will be of the same nature as today's headaches that have been caused by Silver Maples, Siberian Elm and misplaced American Elms, among others.

The conflicts on private property are not as well known or as widely publicised as are those that exist on city streets. On the municipal side the newspapers make a big crusade out of the citys failure to remove a 48" elm ten minutes after some offended (offensive is better) taxpayer calls in his request. The newspapers have to have a "whipping" boy in every administration (any reference to persons living or dead is purely coincidental) and so they hop on to the poor city arborist. They wouldn't dare hop on to a taxpayer who had a ¾ dead, huge forest giant that should be removed from his yard, they might lose a subscriber. So the long suffering Arborist has to put up with the onesided guff (he is never given a chance to tell his side of the story) and do his best to remove trees with his insufficient funds, that should never have been planted.

But the City Arborist can, in the many great opportunities afforded him today through the new subdivision developments that are springing up in every city and town, begin a constructive program of planting, by using trees of small and medium mature stature. He should study the trees he selects, and not rush headlong into some ballyhooed novelties. He must know what form the tree will make at maturity and

what size. He must weigh the trees assets and liabilities—which each has. He must bear in mind that forest giants are the trees that are causing his present trouble and therefore resolve not to make these same mistakes over again. There is a place for big trees on city streets, but not on 98% of the streets. The ratio should be reversed, 2% big trees, a little more or less, and 98% small trees. Then and only then will he be in line. With this proportion of in-scale trees he can justify spraying and other moderate maintenance practices which can be amortized against the huge savings effected through the use of small trees and the resulting small costs involved in their removal when they reach the "end of the line."

ALONG THE WAY With . . . . EDW. SCANLON

■ A NOTE from our good friend PERK WARDWELL conveys the GOOD NEWS that the FORMER TREE WARDEN OF STONEHAM, MASS., has recently BEEN APPOINTED TOWN MANAGER at CONWAY, N. H. PERK says he is going to get a TREE PROGRAM going there. The BEST OF LUCK chum.

■ **Did you hear LOVELY JEANETTE McDONALD on TV Dec. 20? Caught it in Phila. She can STILL MAKE THE CHILLS run up MY SPINE with THAT GLORIOUS VOICE. Someone SHOULD FORCE her to make AN APPEARANCE at least ONCE A MONTH. Still magnificent.**

■ Now I know WHATS WRONG with ROCK 'N ROLL MUSIC—the SAME THING that's WRONG WITH CHRISTMAS CAROLS. Hearing them from EVERY STREET CORNER, store, radio and TV, topped off with a 4 HOUR WAIT FOR FOG in Philly airport (again), while the CAROLS DRONED on and on over the P. A. SYSTEM. That did it. WELCOME BACK ROCK 'N ROLL.

■ **Well WE DIDN'T have a DIRTY CHRISTMAS — it was WHITE, and about an inch of it. QUITE A SURPRISE after all the WEATHER BOYS had been VERY PESSIMISTIC.**

■ I am SORRY TO REPORT that something WENT WRONG with the CHERRY CROP last spring, with the result that our KICKAPOO JUICE did not live up to PAST BATCHES. It must have BEEN THE CHERRIES — the OLD VINTNER couldn't possibly HAVE MISSED some important INGREDIENT. It had a little bitter taste—NOT SMOOOOTH.

■ **We salute ORVILLE SPICER and the BARTLETT TREE EXPERT CO., on the dedication of their BRAND NEW SWELEGANT OFFICE, which was opened several days ago. See picture page 5 — BUT WHERE ARE THE TREES?**

■ I didn't see LOUIE CHADWICKS name in the OHIO STATE LINEUP for their LAST TWO GAMES, but I understand HE'S HOBBLING AROUND with a cast ENCASING A BROKEN HEEL. LOUIE wanted OSU to win THOSE GAMES and it WOULDN'T BE SURPRISING if he crept into A UNIFORM, snuck into the games, when the COACH WASN'T looking, and GOT RACKED UP.

■ **A LATER REPORT on the KICKAPOO JUICE situation is refreshing. On FIRST SAMPLING it was harsh, but tried POURING the juice OFF THE CHERRIES and letting it STAND FOR AWHILE—IT WORKED, so now we're back IN BUSINESS.**

■ I DIDN'T EXACTLY suffer from HEAT PROSTRATION on my JANUARY TRIP to OREGON AND CALIFORNIA. Had snow, frost, rain, fog and cold—so when I STEPPED OFF the plane at CLEVELAND IN 6 BELOW weather it really FELT GOOD—indoors.

■ **Actually LOUIE CHADWICK was PRUNING a PAULS SCARLET HAW when he skidded and BROKE HIS HEEL —how about OBSERVING those NSTC SAFETY RULES DOC?**

■ After ABOUT 20 YEARS of INTERESTING CORRESPONDENCE I finally met DON OBERT, now DIRECTOR OF PARKS AT LONG BEACH, CALIF. DON has a REAL LIVE PARK development program going there—and THEY NEED IT.

■ **Took a TOUR OF LONG BEACH with KAYE HALL, the NEW CITY ARBORIST, who is FULL OF GOOD PRACTICAL IDEAS—which is something STREET TREE MANAGEMENT needs a LOT OF.—KAYE is building a BIG CITY NURSERY on a beautiful tract of land. He has ALREADY PLANTED A NUMBER OF STREETS with GOOD SUBSTANTIAL species. But it looks like HE HAS A "MILLION" of the "old favorites" TO TAKE OUT—Chinese, Siberian and American Elm, Casuarina, Blue Gums and many others.**

■ Didn't see CURLYTOP HOLDERNESS. Found out that he is PIONEERING up in the hills NORTH OF SAN FRAN at a burg called LITTLE RIVER. His estate is named "HOLDERNESS WILDERNESS." Hope ESTHER is in CHARGE OF ALL TREE FELLING so they don't CAVE IN the palace.

■ **Had a FEW MINUTES confab with BILL MOTT at a NURSERYMENS DINNER in Oakland where BILL WAS THE SPEAKER. Their TREE PROGRAM is jumping and should GET OFF THE GROUND in another year.**

■ The LITTLE PORTION of the NEW JERSEY NURSERYMEN MEETING that I attended IN TRENTON had a good turnout. CLYDE HAMILTON, ED REX and BILL SNYDER were RINGLEADERS IN THE AFFAIR. That "FARMERS WEEK" is quite a FINE THING. Every segment of the HORTICULTURAL AND AGRICULTURAL enterprise of the state HAS A PROGRAM.

■ **DON'T FORGET to send in your HOTEL RESERVATIONS for the SECOND STREET TREE & UTILITY CONFERENCE — March 7-8 — HOTEL CLEVELAND—Ohio. There is a NICELY BALANCED PROGRAM.**

■ Another "DON'T FORGET" is the one about your change of address. IT HELPS US MUCHO—better than waiting for the LOUSED UP postoffice to louse it up further.

■ **According to HARRY NELSON OF CITY COLLEGE OF SAN FRANCISCO there has been SET UP a separate STREET TREE DIVISION in the city. This is AS IT SHOULD BE—Trees are the MOST IMPORTANT HORTICULTURAL ASPECT of any city and should not BE CONFUSED with parks and recreation, ESPECIALLY the confusion of THE LATTER.**

■ JOE MOSHER OF BERRIEN CENTER, Mich., says I am in the DOGHOUSE for not showing at the MICHIGAN LANDSCAPE Conf., on Jan. 11 to talk on, OF ALL THINGS trees. I DIDN'T BLOW that one JOE, I had explained, when invited to participate, that it was EXTREMELY DOUBTFUL that I could MAKE IT because of a WEST COAST BUSINESS trip every year at that time.

■ **Usually a CALENDAR is NOT A THING to GET EXCITED about—well, THAT IS, I mean the CONVENTIONAL ONES. However received one from BILL VAN HOOK, SUPT. OF PARKS AT ROCHESTER, MINN. This is a honey. It shows GLOBE LOCUSTS on a DOWNTOWN STREET in front of the NEW BUILDING OF THE POST-BULLETIN. It's really neat. The NEWSPAPER PEOPLE LIKED THE effect so well THEY SELECTED THIS shot for their CALENDAR.**

CONTENTS

Vol. 17 Bi-Monthly No. 2

Subscription Price $2.00 Per Year
(Foreign $2.50) 35 Cents Per Copy
TREES MAGAZINE
7621 Lewis Rd., Olmsted Falls, Ohio

The Editors of TREES invite discussions, comments and all type of literary materials pertaining to trees and tree preservation from any person engaged either in the scientific advancement or commercial development of the field.

CONTENTS

Editorial 4
City Arborist Should Know All About Trees He Uses
Along The Way 5
Second Street Tree and Utility Conference Program 6
Elm Leaf Beetle and Dutch Elm Disease — Experiments 7
On Practical Use of Mist Blowers in New York State
by John G. Matthysee
Program—Midwestern Shade Tree Conference 9
For Your Calendar 9
Coordination of Telephone Lines With Street Trees 11
by F. Woodland
D. E. D. Spreads Fast In Wisconsin 15
Authors and Books 22

TREES Magazine is a bi-monthly Journal published at Olmsted Falls, Ohio by Edward H. Scanlon, and is devoted to the furtherance of the technical and business administration of Trees (Street and Ornamental); Parks Municipal and National); and Forests (State, National and Private), in the U. S. Scanlon Publishing Co., 7621 Lewis Rd., Olmsted Falls, Ohio. Subscription by mail $2 per year; outside United States, $2.50. Advertising rates upon inquiry. Closing date for advertising copy—10th of month preceding date of issue. Unsolicited manuscripts must be accompanied by return postage.

Second Street Tree & Utility Conference: Cleveland March 7-8—Hotel Cleveland

The dates for the second conference ordained by the 300 delegates who attended the epochal meeting in Cleveland two years ago, are rapidly approaching.

Because of the greatly increased interest in this conference and the expressions of a desire to attend from many who failed to attend the first meeting, the second had to be scheduled for a larger hotel. On March 7-8 the Hotel Cleveland will be the scene of the meeting. A broad program has been prepared by the co-chairmen. This is in accord with the expressed wishes of the first assembly, that related fields be tapped for contributions to the development of this very important phase of city planning—the embellishment and functionalization of our streetsides.

You are requested to make your hotel reservations immediately and to send your registration fee in advance to help avoid the jam of registration prior to the meeting. Registrations will also be possible on Wednesday afternoon March 6 at Hotel Cleveland.

If you missed the first conference you are urged to attend and participate in this one. The impact of the first meeting has been felt throughout the country and on the first morning a very impressive review of this progress will be made. These case histories contain many revealing facts on the progress of long range municipal tree programs that have been launched by a number of Public Utilities. This looks like a wonderful conference with a splendid program.

THURSDAY, MARCH 7
MORNING—10:00 A.M.

Chairman — John W. Anderson
Edison Electric Institute

Trees and Utilities—Vital Components in Community Development
Harry T. Sealy, Vice President, Cleveland Electric Illuminating Co., Cleveland, Ohio

Keynote—Summary of First Conference
Professor H. O. Perkins, University of Connecticut, Storrs, Con.

Progress Since the First Conference—Case Histories
California
Cleveland
Connecticut
Detroit
Philadelphia

AFTERNOON—2:00 P.M.

Chairman—Kirk M. Reid, Illuminating Engineering Society
Theme—Trees in Our Communities

The City Planner Looks at Long-Range Street Design
A. R. Schoenfeld, Cleveland, Ohio —American Institute of Planners

Design Principles of Tree Use To Fit Space and Environment
Markley Stevenson, Philadelphia, Pa.—American Society of Landscape Architects

Value of Effective Tree Use in Home Building
E. R. Carr, Washington, D. C.—National Association of Home Builders

Arborists Can Help Achieve Understanding and Co-operation
M. L. Davey, Jr., Kent, Ohio

DINNER—6:30 P.M.

Chairman—E. H. Scanlon, National Shade Tree Conference
Address — Teamwork in Public Service

FRIDAY, MARCH 8
MORNING—9:30 A.M.

Chairman—Edward H. Scanlon
Theme — The Long-Range Street Tree Program

Why We Need a Street Tree Program
Stephen T. Zona, Mayor, Parma, Ohio

Street Tree Programs in Operation
John Michalko, Commissioner of Shade Trees, Cleveland, Ohio
Robert B. Henn, Superintendent of Parks, Euclid, Ohio
Leonard F. Anderson, Secretary Shade Tree Commission, Essex County, New Jersey

Selection and Propagation of Functional and Ornamental Trees
Henry T. Skinner, Director, National Arboretum, Washington, D. C.

Practical Aspects of Marketing Street Trees
James I. E. Ilgenfritz, Monroe, Michigan

AFTERNOON—2:00 P.M.

Chairman—Kirk M. Reid
FORUM
PANEL—ALL SPEAKERS
Questions and discussions from the the floor
CONFERENCE SUMMARY—AND THE NEXT STEPS
Professor H. O. Perkins, University of Connecticut, Storrs, Conn.

REGISTRATION FEE, $12.50, includes banquet and copy of Conference Proceedings, in which all papers and discussions will be printed. Send registrations, with registration fee, to E. H. Scanlon, 7621 Lewis Road, Olmsted Falls, Ohio.

Please make hotel reservation directly with Hotel Cleveland, mentioning attendance at the Street Tree and Utility Conference.

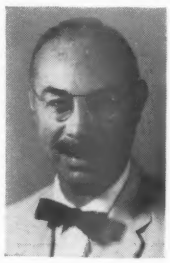
Extra copies of Conference Proceedings will be available. Estimated cost: $3.00

Conference Co-Chairmen:
John W. Anderson 3d — Edison Electric Institute
Kirk M. Reid—Illuminating Engineering Society
Edward H. Scanlon—National Shade Tree Conference

Dr. Plumb To Bartlett

Dr. George H. Plumb, noted shade tree and forest entomologist, has joined the staff of the Bartlett Tree Research Laboratories.

Dr. Plumb had been chief of insect and disease investigation of the Commonwealth of Virginia Forest Service since 1952. He resigned last year to become entomologist with a U. S. technical mission to Afghanistan under the State Department, a six-month assignment from which he recently returned.



Dr. G. H. Plumb

Prior to going to Virginia, Dr. Plumb was for 20 years affiliated with the Connecticut Agricultural Experiment Station at New Haven, first as an assistant then as assistant entomologist. At Bartlett's Dr. Plumb becomes staff entomologist.

FOR SALE

1 Model L80 Lawrence Aero - Mist Sprayer. In good condition, used 3 seasons.

For information, write Trees Magazine, Box MHO, Olmsted Falls, Ohio

PLANT AMERICA—WISELY

Elm Leaf Beetle and Dutch Elm Disease – Experiments on Practical Use of Mist Blowers in New York State

By JOHN G. MATTHYSSE
Cornell University, Ithaca, N. Y.

Mist Blowers have almost completely superseded hydraulic sprayers for treating urban elms. From every angle it is a good thing, except perhaps for the arborist's pocketbook. And the profits would be good if arborists would abstain from the enticements of too low bidding. The failures in elm leaf beetle control are mainly the result of too short a time spent mist blowing each tree, and competing with wind. Often it is too low bidding that forces the arborist to do these poor jobs. Dutch elm disease preventative DDT applications are a different story. High prices must be charged, but even then it is often a profitless job if the correct gallonage and time per tree is maintained, and applied during the rare windless weather of the dormant season.

What are the requirements for good results in elm mist blowing? To answer this question research has been underway since 1949 at Cornell. The factors under consideration included: The insecticide, solvent, carrier, time per tree, nozzle and output rate, application dates, tree height and effect on other pests. Only one blower has been used. The Lawrence (now Hardie) L80 (except in one plot where the Oliver mist blower was employed). City elms in Ithaca, Warrensburg, Mechanicville, Albany, and Mamaroneck have been used in the experiments. Only a summary of the more practical results are presented here. "Per tree" refers to average street elms, about 60-70 feet in height.

Elm Leaf Beetle

1. *Formulations of DDT.* The research was initiated in the early period of mist blowing, when oil solutions were popular. Comparisons of DDT water emulsions, kerosene solutions, and Shell Horticultural Oil solutions were made. In all cases a 25% DDT concentrate in xylene was used, and the DDT content reduced to 5 or 6% by dilution with the carrier. Results showed that tree top DDT deposits from water emulsion mists, and kerosene solution mists, were similar. Somewhat better tree top DDT deposits could be obtained with the less volatile, heavier horticultural oil carrier. However, the advantage of the horticultural oil carrier was overcome by increased phytotoxicity, or leaf burning. *As a result the recommendation of water emulsion rather than oil solution mists was made,* and has been proven effective in general practise. *Xylene is the only recommended solvent* as all the less volatile aromatic solvents tested were shown to be more phytotoxic. In particular, methylated naphthalene solvents should be used for elm tree sprays.

2. *Concentrations of DDT.* 1%, 3%, 5% and 6% DDT emulsions were tested. Thirty to 45 seconds blowing time per large tree was used, at an output rate of ½ gallon per minute. No differences between 5% and 6% could be demonstrated, both giving excellent leaf beetle control. 3% DDT was definitely inferior, and 1% DDT very poor. Certainly the lower concentrations can be used effectively provided higher output rate and or greater time per tree is allowed. *But most economical job can be done with 5 or 6% DDT by an experienced and conscientious operator.* Should you use 5% or 6%? 5% is a convenient figure, 10 gallons 25% DDT emulsifiable and 40 gallons water per tankload. 6% requires 12 gallons of 25% DDT and 38 gallons of water. In general, putting that extra 2 gallons is worthwhile insurance. You may want to use the 5% on a low bid contract, but please see to it that a thorough job of tree coverage is done, and in windless weather.

3. *Time per tree.* A series of experiments were conducted on groups of large city elms, using one DDT mixture only, but varying the nozzle size (output rate) and time per tree. It was found that, regardless of the nozzle, *at least 30 seconds was required for a good operator to reach and cover a whole tree. This is a bare minimum, 45 seconds is more satisfactory for really adequate control in general.*

4. *Output rate.* What nozzle to use is a common question. The answer depends on the time you want to spend per tree, and the concentration of DDT you have in the tank. Using 5 to 6% DDT and 30 to 45 seconds per tree, it was found that *½ gallon per minute was adequate.* Two Whirljets No. 73 give ½ gallon per minute at 40 pounds per square inch. This is maximum for a good operator. By using one No. 63 and one No. 73 Whirljet an output of ⅜ gallons per minute is obtained and

(Turn Page)

Phytotoxicity. Note the killed buds and small light colored leaves. This is how Elm trees look in June if the wrong mixtures are used in dormant spraying.

Good control of Elm leaf beetle. This is how elm leaves should look in June.

You Saw Their Ad in TREES

will be found preferable by man operators. 1 gallon and more per minute output rate can be used effectively, but the DDT percentage should be lowered to 3% or even to 1%. (1% will be effective if time per tree is also increased). However, cost of spraying will go up, and car spotting will begin to be a headache.

5. *Application Dates.* Treatments were applied in Central New York from the time of bud break in May until leaves were well expanded in June. It was found that *good control could be achieved by treating as soon as the leaf blade was unfurled and had begun to expand.* Most seasons, in Central New York, effective elm leaf beetle spraying could be started by May 15. By June 10 larval feeding was so noticeable most years that trees sprayed after this date were less acceptably protected. Note that these dates are earlier than much elm leaf beetle spraying is done by arborists. You should start early and have your contract work all done before mid June in the latitude of Central New York. Further south the dates are even earlier. Dates are of course misleading, start the work by noting leaf development. The trees that habitually leaf out late are a problem; to avoid a second go-over it may be necessary to wait until the foliage on these late trees just begins to unfurl. We have never found need for a second treatment in New York. Further south, where second generation may be important, conclusions will differ.

6. *Other observations.* Acceptable coverage of tall city elms could only be accomplished in *windless weather.* A slight air drift need not force cessation of spraying, but you should quit as soon as there is wind. Go to smaller trees, other work, or breakfast. If you have much contract elm spraying, your blower should be *equipped with lights, and much of the work done at night.* Our plot work could only be completed by working all night when weather was good. In good weather, no difficulty was encountered in obtaining control in the tallest of elms.

The single springtime foliar spray of one to two quarts of 5 to 6% DDT has caused no severe increase of mites, scales, or aphids in our plots. Comparisons are difficult as check unsprayed trees are usually defoliated by the elm leaf beetle. There has been no need for miticide or other insecticide addition to this spray. Sporadic outbreaks of aphids will occur, and separate sprays of lindane or malathion may be required. Also, scales are often severe on elm, regardless of the elm leaf beetle DDT spray, and may require a dormant oil spray. Our experience has simply been that such outbreaks occurred on untreated trees as often as on elms mist blown with DDT for leaf beetle control.

7. *Other Insecticides—Dieldrin.* The only other insecticide found promising for economical control of elm leaf beetle is dieldrin. Experiments with dieldrin were begun in 1954. 18.5% dieldrin emulsifiable solution was used in water emulsion at 3% dieldrin (8 gallons emulsifiable dieldrin and 42 gallons of water). *Consistently, 3% dieldrin gave elm leaf beetle control equal or superior to that of 6% DDT.* Comparison was at the rate of 1 quart of mist per large elm, using ½ gallon per minute output rate. In difficult control circumstances such as too early application or below minimum gallonage per tree, 3% dieldrin was considerably superior to 6% DDT.

During 1955 several concentrations of DDT and dieldrin were compared. Both emulsions and oil solutions were tested. Again 1 quart per large elm was applied at ½ gallon per minute.

The Elm leaf beetle.

Cluster of Elm leaf beetle eggs. When these are on the leaves you should be spraying.

Dieldrin proved consistently superior to DDT. *1% dieldrin in all cases gave good control of elm leaf beetle,* but 3% dieldrin was superior. No significant difference between 6% DDT and 1% dieldrin could be demonstrated, but there was a trend towards better protection by 6% DDT .3%DDT was definitely less effective than 1% dieldrin or 6% DDT. *It was concluded that 1% or 3% dieldrin are satisfactory for elm leaf beetle control,* but that 3% dieldrin is to be preferred. Further work is needed to determine the best concentration to use. Likely 2% dieldrin would be found to be a satisfactory compromise.

The question of dieldrin and DDT toxicity to man should not be overlooked. *Dieldrin is more toxic than DDT, however, the lower concentration of dieldrin necessary for control reduces the hazard.* Federal label acceptance has been obtained for mist blower work with dieldrin in cities. *This indicates there is no toxicity hazard to man so long as proper precautions are taken.* Spray crews should be warned about toxicity, and all precautions taken to prevent spillage, and to reduce skin contact and inhalation of the dieldrin mist.

Dutch Elm Disease

A complete outline of research accomplished on spraying for Dutch elm disease prevention must await a subsequent article. The plots have been designed as long term experiments; and have two years to run. The following is a brief presentation of preliminary findings.

1736 large city elms were originally present in the plots in Mechanicville, Albany, and Mamaroneck. Every spring, for 5 years now, a dormant 12½% DDT emulsion mist has been applied to half the trees, in a definite plot arrangement. Gallonage per tree has varied according to tree size. Large spreading 70 foot elms received about 3 gallons of mist (3 minutes blowing at 1 gallon per minute rate No. 96 nozzles). Smaller trees have received much less, for example a 50 foot tree with a medium crown has received 1 to 1½ gallons. We have waited for days and days in each city until windless weather occurred. Almost all treatment has been at night, and usually in near freezing weather. Some treatments were made at below freezing weather with

(Continued on Page 16)

Midwestern Shade Tree Conference

The 12th annual meeting of the Midwestern Chapter of the National Shade Tree Conference will be held February 13-14-15, 1957, in the Pfister Hotel, Milwaukee, Wisconsin. The purpose of the organization is to encourage the planting of more trees and ornamental shrubs, to raise the standards of tree care practices by dissemination of knowledge gained through laboratory research and field work and to promote more friendly cooperation among those engaged in arboriculture. Membership is composed of commercial arborists, city foresters, park personnel, nurserymen, educators, research scientists and others interested in the propagation and care of trees and shrubs.

The convention is open to all who wish to attend. Registration of delegates will start at 8:30 a. m., Wednesday, February 13, and the first paper on the educational program will be presented at 11:00 a. m. An attendance of approximately 300 members and guests is expected.

The program is primarily directed to discussion of problems of concern to those who perform tree work in the midwest, but included also are topics of interest to arborists from all sections of the country. Following presentation of each paper there will be a period for discussion and questions. Additional opportunity for questions and discussion will be provided in the Plant Clinic session which will be held Friday morning. Various tools and supplies used in arboricultural work will be on display in the West Extension of the Fern Room in the Pfister Hotel throughout the convention, with representatives on hand to explain their uses.

Included on the educational program are the following topics and speakers:

Growing Up—Dr. Paul E. Tilford, Exec.-Sec., National Arborist Association, Inc., Wooster, Ohio; *Trees and Utility Wires*—Luther E. Lockwood, Public Service Company, Maywood, Ill.; *A Progress Report on the Use of Chemicals in Burning Hardwood Tree Stumps*—Charles S. Walters, Dept. of Forestry, University of Illinois, Urbana, Ill.; *Brush Control—Past, Present and Future*—Homer L. Jacobs, Vice-President, Davey Tree Expert Co., Kent, Ohio; *Use of Radio-active Isotopes in Tree Disease Research*—Dr. James E. Kuntz, Dept. of Plant Pathology, University of Wisconsin, Madison, Wisc.; *An Evaluation of Mist Blowing and Sanitation in Dutch Elm Disease Control Prgorams*—Prof. J. G. Matthysse, Dept. of Entomology, Cornell University Agricultural Experiment Sta., Ithaca, New York; *Tree Anatomy and Function*—W. H. Bragonier, Dept. of Botany & Plant Pathology, Iowa State College, Ames, Iowa; *Natural Occurring Antimycotics in Relation to Wood Decay*—E. S. McDonough, Dept. of Biology, Marquette University, Wilwaukee, Wisc.; *The Rival World*—A film in color and sound produced by the Shell Chemical Corporation, New York, N. Y.

Leakage Control Firm Seeking Foresters

Foresters, and other men with horicultural and arboricultural experience, are being sought by Heath Survey Consultants, Wellesley, Mass. The Heath firm specializes in leakage control surveys which are made by observing effects of gas leakage on soil and vegetation. According to Milton W. Heath, President, the expansion of leakage control work in 45 of the 48 states is opening up extremely interesting employment opportunities for men with the required background.

On Chain Saw Care

A complete guide for protecting chain saws during periods of storage was announced this week by Art Gredler, service manager for McCulloch Motors Corporation, Los Angeles, world's largest builder of chain saws.

"Winterization requires minimum effort," Gredler said, "and assures top performance and long life for your saw."

He recommended these rules:

1) Clean outside of chain saw engine thoroughly with a commercial cleaning solvent and compressed air. Be sure to remove all dirt and sawdust, especially around the cylinder fins. Remove excessive carbon accumulation from exhaust ports and muffler slots. Check screws for tightness and replace any worn or damaged parts.

2) Drain standard fuel mixture and fill fuel tank completely with an especially light fuel mixture. For the special mixture, use only half a cup of oil to a gallon of gasoline. (This allows sufficient lubrication, but prevents oil from settling in carburetor.) Start and run engine for 30 seconds to fill fuel system. This process prevents condensation during storage. When saw is used again, this special mixture must be drained, and fuel tank filled with normal mixture.

3) Remove spark plug; pour an ounce or two of 30-weight oil into cylinder; turn over engine by hand several times to allow oil to coat cylinder wall; then replace spark plug.

4) Clean bar and chain, removing all dirt and sawdust from bar groove, and lubricate with 30-weight oil. Soak chain overnight in oil. If sprocket is worn, it should be replaced. If bar groove or guide rail is worn, saw should be sent to a local dealer for repair.

5) Open breaker box and remove dirt and moisture. Reset breaker points to correct setting. Be sure cover gasket is in good condition and sealing properly.

6) Be sure gear case has ample lubricant to protect gears during storage.

7) Store saw in dry place.

For Your Calendar

Massachusetts Tree Wardens' and Foresters' Association, Horticultural Hall, Boston, February 5-6, 1957

Midwestern Chapter, N.S.T.C., Hotel Pfister, Milwaukee, Wisconsin. February 13-15, 1957

Second Street Tree and Utility Conference, Hotel Cleveland, Cleveland, Ohio, March 7-8, 1957

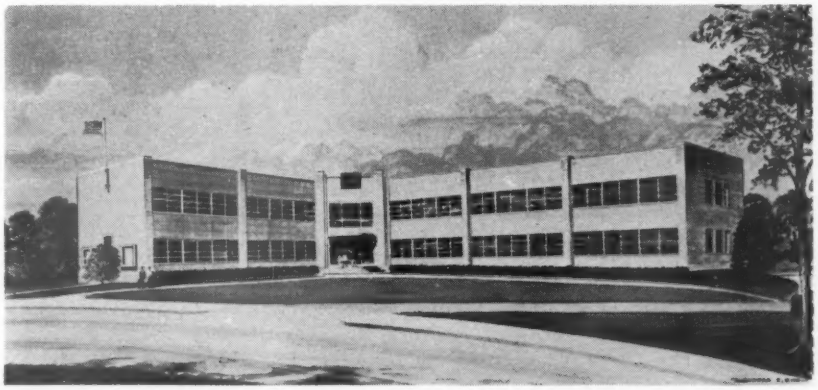
Southern Chapter, N.S.T.C., Shamrock-Hilton Hotel, Houston, Texas, March 11-13, 1957

Massachusetts Tree Wardens, Arborists, and Utility Conference, Amherst, Mass., March 18-22, 1957

National Shade Tree Conference, 33rd Convention, Sheraton Hotel, Philadelphia, Pa., August ?, 1957

Western Chapter, N.S.T.C., Yosemite National Park at the Awahnee, May 9-11, 1957

The Home That Trees Built



The new headquarters and laboratory building of the Bartlett Tree Expert Co., at Stamford, Conn.

You Saw the Ad in TREES

Trees...

"Brush Disposal in ⅓ the time" with FITCHBURG CHIPPERS

Martin J. Kelly, President, Martin J. Kelly, Inc., Tree Expert, Cheshire, Conn. More than 28 years in the tree care business.

FITCHBURG CHIPPERS BELONGING TO MARTIN J. KELLY, INC., Cheshire, Conn., are well known along Connecticut roadways.

Painted bright yellow, and carrying a flashing red light, Kelly's three Fitchburg Chippers are in constant use with a 3 to 5 man crew doing custom line clearance work for utilities and other concerns.

Mr. Kelly has this to say about his Fitchburg Chipper fleet:

"We are operating three of your Fitchburg Chippers and find that the chipping of brush is done in one-third of the time that it would take to pile and burn the brush. It also eliminates the fire hazard of burning and the necessity of covering the burned brush.

The performance of these Chippers is very satisfactory and have given us no trouble.

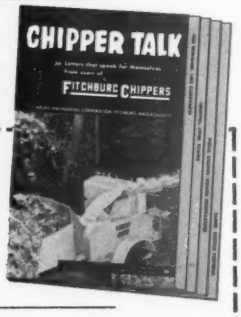
We are writing this note to give you an idea of our experience and to let you know how we appreciate your equipment."

Before you buy chipping equipment for your line clearance operation, get full specifications and compare. Remember, Fitchburg Chippers and *only Fitchburg Chippers* have the patented spring-activated feed plate that provides extra safety in operation and assures ease in chipping all wood sizes to the machine's rated capacity.

Only Fitchburg Chippers have the hinged feed apron that can be closed when the Chipper is not in operation. *Only Fitchburg Chippers* give you a written ONE YEAR GUARANTEE. So get all the facts before you buy. Mail the coupon now for your free copy of the new Fitchburg portfolio "Chipper Talk"—chock full of pictures, diagrams, and data.

Free Portfolio-"CHIPPER TALK"

Complete cutaway color drawings of Fitchburg Chipper in action. Specifications. Photo copies of letters from municipalities, commissions, counties, contractors, tree care men.



FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. TM-17
Send my free copy of "Chipper Talk" to:
Name_____ Position_____
Company_____
Address_____
City or town_____ State_____

DON'T GAMBLE WITH SAFETY

USE

BARTLETT EQUIPMENT

Safety Belt with Snap, made of best webbing and harness leather obtainable. "D" rings, snaps and adapters of nickel steel drop forged.

No. 205-L new Safety Saddle provides belt and saddle combination. Main belt of heavy 3½" leather reinforced by tightening strap adjustable from 36" to 44". Two large "D" rings. ½" 4-strand rope passes through belt supports and encircles 3" leather leg supports.

Other Bartlett Safety Aids

4-STRAND SAFETY ROPE
TREE CLIMBING ROPE
TREE TRIMMERS HARNESS
INSULATED TRIMMERS
"MEN WORKING" SIGNS

Write for Catalog and Prices

Bartlett Mfg. Co.

3058 East Grand Boulevard
Detroit 2, Mich.

Coordination of Telephone Lines With Street Trees

By F. WOODLAND
American Telephone & Telegraph Company, New York, New York

(EDITOR'S NOTE: *This is the second of a series of papers given at the First Street Tree & Utility Conference in Cleveland, March 3 and 4, 1955. The complete proceedings of 141 pages of this pioneering conference are available. The Second Conference will be held in Cleveland March 7, 8, 1957. The program is contained on Page 5.)*

MR. F. WOODLAND: Mr. Chairman, ladies and gentlemen, as Mr. Anderson just pointed out, so far as we have heard about electric line street lighting, and shadetrees. Now I would like to say something about the coordination of telephone lines with street trees. I would like to take this opportunity to thank the three co-sponsors for inviting the Bell System to tell their side of the story.

The design and construction of overhead telephone lines has required coordination with other utilities, with street and highway departments, and with private property owners as well as with street trees. The Bell System is vitally interested in maintaining the beauty of the streets in every community in which it operates in order to promote good public relations and uphold the quality of the community. We are anxious to protect the healthy shade trees and avoid interference with them and to work with other utilities to make our distributing lines as unobtrusive as possible. A solution of the problem of coordination of telephone lines with those of other utilities that has found wide application consists in the use of a single common pole line to support the circuits of several utilities. Fortunately, this has not only proved economical but has also greatly facilitated the coexistence of utility lines and shade trees on the same streets, since the space occupied is much less than if separate lines were built. The development of more economical methods and materials for building overhead telephone lines has also been aimed toward the solution of these coordination problems.

In some respects the telephone business is similar to the electric power business, and we, like the electric power companies, have found that overhead lines along the public streets and highways are a very economical and practical way of building distribution plant for providing service to our customers. This location has always looked attractive to us because of its inherent accessibility for the construction and maintenance of the lines. The accessibility factor has a large influence on costs and consequently has played a large part in making low telephone rates possible. There are, however, many locations where it costs no more, or may even cost less, to build the telephone lines on private property. This is in evidence throughout the country, primarily in newly developed residential areas, where quite often the telephone lines are built along the rear property lines on private property easements. Certainly the most attractive location to us is the one where construction and maintenance costs are lowest, as long as we can provide efficient service. For appearance and other reasons, such as less susceptibility to damage by vehicular traffic and storms, we would prefer to build all our lines underground. However, the costs

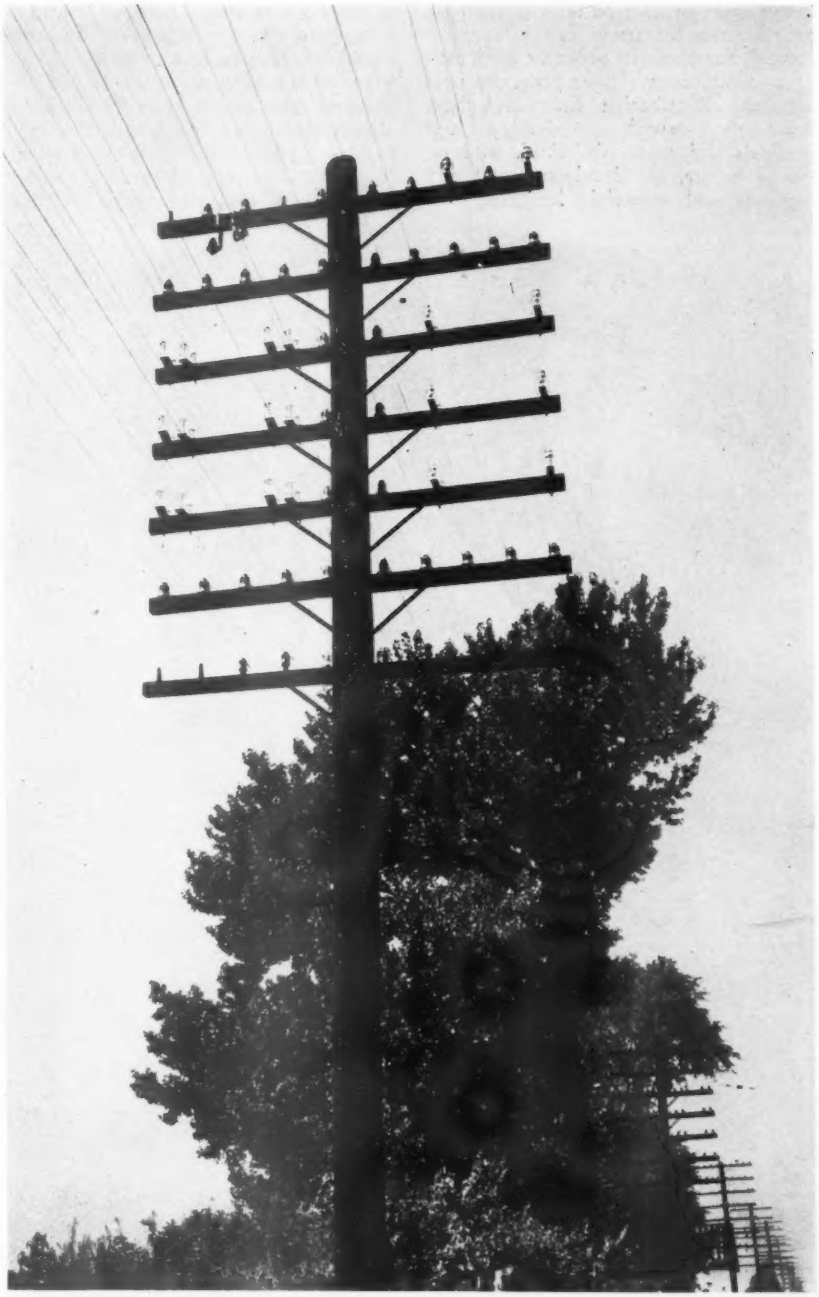


Fig. 1—This open wire telephone line occupies 120 square feet, yet carries only 35 circuits. Today, only 4 per cent of Bell System lines are of this type.

Patronize the Advertisers and mention TREES

of building underground distribution plant are usually substantially greater not only for the telephone company but for the customer as well, since the customer must provide an underground entrance from the street line to the customer's premises. In order to keep costs at a minimum, we have generally used overhead distribution lines and have constantly strived to develop new methods and materials. And, as mentioned before, the development of new methods and materials has also been aimed toward coordination of our plant with other utilities and with street trees.

Years ago telephone lines usually consisted of open wire conductors on pole-supported crossarms. (Fig. 1) This is a typical open wire telephone line consisting of 35 telephone circuits. Open wire construction is still one of the cheapest methods we know for building telephone lines to accommodate a comparatively small number of circuits (say five to ten circuits). However, the size of telephone distribution line in most general use today consist of about 50 telephone circuits and many of the distribution lines consist of upwards of three or four hundred circuits. Of course, when a particular route feeds a large area, we no longer call it a distribution line, but rather refer to it as a feeder line or feeder route. Generally, we find it is practical to use underground cable construction for the very large feeder lines, and 60 per cent of the total line wire used by the Bell System is in the form of underground cable.

Fig. 2—Compare space required by open wire line (Fig. 1) with this lead-sheathed cable which consists of 50 circuits. It occupies about 3.3 square inches.

The physical space occupied by the wires and crossarms shown in Fig. 1 has a cross-sectional area of about 120 sq. ft. (12′ x 10′) and this does not include additional clearance space that would be required above, below, and on both sides, from tree limbs or foliage to guard against interference with the operation of the circuits. Open wire circuits in addition to being sensitive to contact with other structures such as trees, are also vulnerable to damage by sleet storms. But more than any other single factor, the fact that they occupy so much physicial space has led to the development of the telephone cable type of construction. Only 4 per cent of the total line wire in use in the Bell System today is in the form of open wire and most of it is in rural areas.

Compare the physical space occupied by this telephone line (Fig. 2), which consist of 50 physical circuits, with the space occupied by the previous line. This is a lead-sheathed cable supported by steel rings clipped to stranded steel support wire. The cross-sectional area occupied by the support wire, rings, and cable is about 3.3 square inches or about 1/5000 of that occupied by the previous line. This is a tremendous reduction in required space and even a 900 pair telephone cable would not require appreciably more space than this 50 pair cable. Also, light contact with nearby structures will not interfere with the operation of these circuits; however, it is necessary to guard against continuous abrasion of the sheath, as this would eventually cause sufficient damage to destroy its moisture-sealing ability and consequently result in circuit failures. This type of construction has been used for many years, and 90 per cent of the aerial line wire in use in the Bell System today is in the form of aerial cable.

The constant effort to reduce construction costs, and thereby permit the cheapest possible telephone rates, led to the development of another form of aerial cable construction which we call lashed cable (Fig. 3). The physical space occupied by this line is even somewhat less than in the previous case. This development was made primarily to reduce costs, but it has also benefited the coordination of telephone lines with

trees because the construction methods used usually do not require a workman to ride the line in a cable car as was necessary in builidng the ring-type construction. A more recent refinement of this type of construction called "prelashing" has facilitated aerial cable construction in close proximity to trees because the "prelashing" method has made it possible to pull the supporting strand and cable, all lashed together, into place on poles with fewer work operations. Prior to prelashing it was necessary to pull a lashing machine along the aerial line to lash the cable to its supporting strand, and many times the tree conditions interfered with this operation.

Another recent development which facilitates the coordination of telephone lines with shade trees is the development of a new wire facility which we call B Rural Wire. This new facility, like telephone cables, tremendously reduces the space occupied by the telephone lines. B Rural Wire consists of six pairs of plastic insulated wire and a support wire all assembled into a compact unit with a circular cross-section about 6/10 of an inch in diameter. The cost of constructing a telephone line, where six circuits are adequate, using this facility, is low enough to compete with the cost of open wire construction. This is the first competition, on a cost basis, that small open wire telephone lines have had since their inception. Since this facility is primarily for use in rural areas, its advantages from the standpoint of coordination of shade trees and telephone lines are of primary interest in connection with shade trees along highways.

In addition to coordinating the aerial distribution lines with street trees, we have the problem of coordinating service connection wires with street and private property trees. The service connection wires usually run direct from a pole to a building attachment on the subscriber's premises. However, in order to avoid trees and other structures, the service connection wires can be run along the cable to some mid-span point, where a clamp is attached to the cable supporting strand, and thence to the subscriber's premises (Fig. 4). These service connection wires usually consist of a pair of rubber-insulated wires and must be protected from abrasion where they run through trees or may rub on other structures. By using span clamps as mentioned before, and planning the location of the first building attachment, we can often avoid the trees. Where the trees cannot be avoided, we request permission to trim the small branches of the trees and place a plastic guard over the wire in the area where abrasion is likely to occur.

Aerial cables are less vulnerable to abrasion by small branches than service connection wires are, but continuous rubbing against large limbs will damage the cable sheath. Where an occasional street tree trunk or large limb cannot be avoided, a wooden guard is placed around the cable to avoid abrasion of the cable sheath. If the tree trunk or limb is very large, a wooden guard may not be practical and sometimes a cable extension arm is placed on the adjacent pole to move the cable to one side. However, this type of construction presents maintenance difficulties and is rather unsightly. Certain maintenance operations require a workman to ride from pole to pole in a cable car suspended from the stranded steel wire that supports the telephone cable. Cable extension arms, tree guards, span clamps, and large limbs close to the cable all make this work operation more difficult. During the last 15 years, overhead ladder trucks have been developed to obviate the need for using cable cars; however, sometimes terrain or highway conditions do not permit the use of ladder trucks; also

Fig. 3—Like the lead-sheathed type, lashed cable—another form of telephone aerial cable —has benefited coordination of telephone lines with trees.

they are expensive compared to cable cars and hence are not always available.

Another item that enters into the coordination of telephone lines with other structures is ground clearance of the telephone lines. Telephone lines do not require as much ground clearance as electric power lines, so on jointly used pole lines the telephone wires occupy the lower space on the poles and the power wires occupy the space at the top of the poles. As far as tree conditions are concerned, sometimes it is an advantage to occupy the lower space, and sometimes it is a disadvantage. But in any case, on jointly used pole lines we and the electric utilities must work together and build pole lines that meet the requirements of both of us. In order to avoid interference with vehicular traffic, we provide a minimum of 18 feet vertical clearance between our wires and the traveled portion of a street or highway. This does not include private residential driveways where this vertical clearance may be reduced to a minimum of 10 feet, provided it is not likely that farm machinery or large trucks will be using the driveway. In general, this means that it is necessary to attach the telephone wires or cable to the poles from 18½ to 19½ feet above the ground, except where service wires have to cross a street or highway and attach to comparatively low buildings, such as ranch-type houses, or where the terrain is such that the buildings on the opposite side of the street are at a lower ground elevation than the pole line. A combination of both of the latter conditions is quite common in some of the modern housing developments in hilly areas and may require taller polls with the telephone attachments made 25 to 30 feet above the ground.

Through the years we have learned by experience that it is desirable to follow certain routines and practices in order to simplify construction and maintenance, as well as achieve as much economy as possible. Accordingly, we have developed certain standards covering the design and construction of overhead telephone lines. These standards are not inflexible and can be modified to take care of special conditions. The following provisions included in our standards are pertinent to the coordination of telephone lines with other structures:

1. Coordination with other utilities operating in the same area to provide safety, good service, and economy.
2. Coordination with local municipalities and highways departments so that lines will conform with future plans for street and highway improvements.
3. Designing to accommodate estimated future load at a reasonable date, not just for present requirements, so that future additions or extensions may be made at minimum cost and minimum inconvenience to the public.
4. Location of poles so that overhead wires and cable, as well as the poles, will have minimum interference with trees and other structures and will at least be susceptible to mechanical injury due to vehicular traffic, falling trees, or fires.
5. Avoidance of unnecessary crossings of other utility lines to minimize interference.
6. Selection of locations with best accessibility for construction and future maintenance.
7. Keeping lines as straight as possible to reduce guying and permit the use of the most advantageous span lengths. (Span length being the distance between adjacent poles.)

Fig. 4—To avoid trees, service wires can be run along cable to mid-span point, where clamp is attached to cable's supporting strand, and thence to dwelling.

8. Designing lines to withstand storm conditions typical of the particular area.

In spite of the many ways and means we have found for avoiding tree interference with overhead telephone lines by developing new methods and materials for the construction and maintenance of these lines, we still find that it is necessary to do a considerable amount of tree trimming. And where tree trimming is necessary, it is essential that it be done properly in order that maximum advantage will be gained from the trimming with a minimum loss of beauty of the tree. To assure the proper type of tree trimming, most of the Bell System operating companies hire qualified tree experts to do their tree trimming for them.

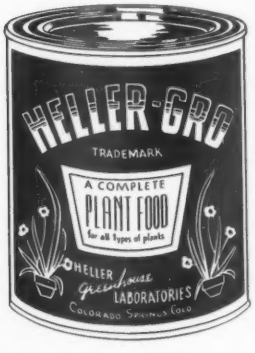
The Bell System's interest in street trees does not stop with the day-by-day job of construction and maintenance of overhead lines, but we have a growing concern over the large amount of damage our lines receive during storms as a result of large trees or large limbs falling down over the lines. Every day greater service reliability is demanded by our customers and by more exacting communication systems, not to mention the dependence of the nation's defense on Bell System services. So we in the Bell System are becoming even more service conscious than we have been in the past, more conscious that our facilities must resist service interruption and, when damaged, that they must be restored rapidly. In many areas large trees in poor condition, because of disease, age, lightning damage, or poor root structure due to their location at edge of pavement or a bank, overhang our lines or stand close enough to cause us deep concern. We know that should a hurricane, or severe storm come through the area, these trees will surely fall, taking our lines with them. During a recent survey of the plant damage the Bell System received during the 1954 hurricanes, some observers said that they estimated from 75 to 90 per cent of our damage was caused by falling trees. We are confidence that at least 50 per cent would be a conservative estimate. Bell System operating companies have been able to eliminate some of these potential sources of trouble by working with communities and municipalities to have these unsafe trees removed before they are blown over. We think more of this work should be done. Such unsafe trees are not only a hazard to telephone and electric lines, but when they fall they also block streets and damage private and public property unnecessarily. So we think that local municipalities should also be interested in their removal before they are blown over by a storm.

The Bell System is anxious to cooperate with municipalities, other utilities, or anyone else interested in this subject of coodination of overhead utility lines with street trees. We look forward to greater efforts along the line of cooperative studies, planned planting of street trees, or finding ways and means for the co-existence of street trees and utility lines. We suggest that more consideration be given to the location and species of street trees. The root system of trees planted too close to pavement and curb lines cannot develop properly, and they are often molested by maintenance and new construction of roads and utility lines. We feel that better planning of street tree planting would create conditions much more favorable to the trees and to utility lines as well. Some of the operating companies of the Bell System have had experience with this type of planned planning in recent years and they are very enthusiastic about its success and future possibilities. A good example of this type of work carried on by one of our operating companies, the New Jersey Bell Telephone Company, will be decsribed tomorrow. We are not, however, taking the position that we have done all we can, and the rest is up to someone else; we will continue to look for better ways and means of building our lines, keeping in mind the coordination of our lines with street trees.

YOU can do this with HELLER-GRO!

BEFORE— May 25. American Elm apparently dying, smothered by concrete driveway, was foliar fed with **HELLER-GRO.**

AFTER— June 18. After **HELLER-GRO** was applied this same tree recovered to continue sturdy, natural growth.



USE HELLER-GRO, THE COMPLETE PLANT FOOD, FOR QUICK RESULTS, LONGER LASTING BENEFITS!

Concentrated, paste form HELLER-GRO produces healthy root growth and luxuriant foliage, builds vitality that comes only with good plant nutrition. It's made with USP organic and inorganic materials, acts immediately and gives long growth response. Use HELLER-GRO on trees, lawns, shrubs or flowers.

Sold in 3¼-oz. tubes, 1-lb. cans, 3-lb. cans, 50-lb. pails.

Representatives:

Norco Garden Products,
95 King Street, E.,
Toronto, Ont., Canada

Gordon H. Knowles,
20 St. Albans Ave.,
Newtown Square, Pa.

WRITE FOR FREE TRIAL SAMPLE

HELLER GREENHOUSE LABORATORIES
218 E. Pikes Peak Ave. Colorado Springs, Colo.

Matthysse

(Continued from Page 8)

no injury occurring, and deposits were acceptable.

Over the 5 year period in Albany annual losses due to Dutch elm disease were 17.6 trees per 1000 among sprayed trees, and 28.6 trees per 1000 among unsprayed trees. In Mechanicville annual losses were 21.7 trees per 1000 among sprayed trees, and 33.7 trees per 1000 among unsprayed trees. *Summarizing the 2 cities, an average of 37 fewer sprayed trees were infected than unsprayed trees.* On the other hand in Mamaroneck, where an *excellent sanitation program has been in effect for many years, no check trees became diseased and only 4.4 sprayed trees per 1000 per year became infected.* Elm bark beetle breeding material on private property, which developed subsequent to setting up the plot arrangement, was the source for these diseased sprayed trees in Mamaroneck.

The year by year progression of disease in the plots is interesting. The first year there was more disease in the sprayed plots than in the unsprayed plots (probably a result of more bark beetle source material near sprayed trees). Subsequent years there was from 38% to 51% fewer sprayed than unsprayed trees that became diseased. Note that these figures refer to year of infection (by ring analysis). Often wilt symptoms in large trees become pronounced a year after infection has taken place.

Protection by DDT has not been good in these experiments. However, even at these rates, *the cost of spraying can be more than balanced by savings in tree removal.* The cost of removing the diseased trees in the unsprayed plots, that would have remained healthy if sprayed, was less than the cost of *all* the spray work. In addition, of course, you have the trees rather than stumps.

As seen in practise, few arborists can make money and do a conscientious job of dormant DDT mist blowing elms. Windless weather in March or April is all too rare, and you can't make money with idle crews. But, unless you wait for windless weather; unless you slowly and conscientiously spray thoroughly each tree; you will not prevent bark beetle feeding and Dutch elm disease infection.

What are the by-products? In all our work in New York we have *consistently obtained good elm leaf beetle control by this one dormant DDT spray.* DDT from bark is redistributed onto leaves in May and June, and kills elm leaf beetle larvae. In fact, it is felt that elm leaf beetle control is an indicator of effectiveness of dormant DDT applications. If leaf beetles are not controlled, do not expect to control the much more difficult bark beetles. In our plots no foliar foliators have caused significant damage. Cankerworms are not as well controlled as leaf beetle, but nevertheless *cankerworm control has been acceptable by ordinary commercial standards. European elm scale has been thoroughly controlled.* Exacting counts on a large number of trees amply demonstrated that heavy dormant DDT mist reduced European elm scale to insignificant numbers. Lecanium scale (European fruit lecanium and hickory lecanium) populations were not changed. No significant differences could be found between sprayed trees and unsprayed trees. Counts of armoured scales (Putnam scale and elm scale and scurfy scale) are not complete at this date.

Mites have been worsened. The elm Tetranychid mites, *Eotetranychus carpini* and the European red mite *Metatranychus ulmi* definitely increased on sprayed trees. *Of even more importance were the vagrant Eriophyid mites.* These very tiny, often overlooked mites caused general yellowing and bronzing of many trees. Although unsprayed trees often showed severe discoloration by Eriophyid mites, the sprayed trees were definitely worse, on the average. Overall mite discoloration of foliage was considerable by midsummer. It is doubtful, however, that there was any great drain on the health of the tree. The two spotted mite has never been important on elm in New York.

(Continued on Page 18)

Can you count the stumps? This is an experimental plot in one of our cities where Dutch elm disease was ignored.

Dormant mist DDT being applied by mist blower for elm leaf beetle control in Ithaca.

ANOTHER TRIUMPH FOR dieldrin

Now powerful dieldrin proved effective for controlling

ELM LEAF BEETLE

Dieldrin—powerful insecticide used extensively on important economic crops—is now available to qualified persons for control of elm leaf beetle.

These elm destroyers are no match for dieldrin's lethal power. In fact, if they touch, taste, or breathe it, they're finished for keeps.

Dieldrin is easy to use
Dieldrin can be applied with conventional hydraulic spray or mist equipment.

Dieldrin is long lasting
Many days after application, dieldrin keeps on killing insects. You can be sure of effective control even when beetles migrate into the treated area.

Dieldrin is economical
You need only a small amount of actual dieldrin mixed with sufficient water for uniform coverage. A little goes a powerful long way.

Dieldrin gets other pests, too!
At the same time you apply dieldrin for control of elm leaf beetles, it kills such other harmful foliage insects as cankerworms, tent caterpillars, webworms, fleabeetles, and many others. When used in the soil, dieldrin kills such destructive pests as Japanese beetle grubs, root weevil larvae, European chafer grubs, and white grubs.

When elm leaf beetles and other pests threaten — strike back with powerful dieldrin. Rely on dieldrin for all-around insect control. Dieldrin is available under well-known brand names from your insecticide dealer. Be prepared — get dieldrin today.

SHELL CHEMICAL CORPORATION

AGRICULTURAL CHEMICAL SALES DIVISION

460 Park Avenue, New York 22, New York

SHELL

PENCO®
AGRICULTURAL CHEMICALS

YOUR ASSURANCE OF QUALITY SPRAY MATERIALS for a good shade tree pest control program

PENNSYLVANIA SALT MANUFACTURING COMPANY OF WASHINGTON
Tacoma, Washington
Aurora, Ill. Bryan, Tex.
Berkeley, Calif. Montgomery, Ala.
Portland, Ore. Los Angeles, Calif.
Pennsalt Chemicals

Matthysse

(Continued from Page 16)

A series of miticides were added to the dormant sprays to try to prevent mite damage. Included were aramite, Ovex Genite 923 white oil, and malathion. In no case was good mite control achieved. We have found nothing that can be safely added to this dormant DDT spray and reduce subsequent infestations of mites, scales, or aphids. The only suggestion that can be made is a separate foliar miticide or miticide-insecticide spray.

Aphids were worsened in some years in part of the plots. No general aphid increase occurred following spraying.

Tree injury (phytotoxicity) was of no importance so long as only xylene base 25% DDT emulsifiable solution was used. Addition of other oils, or use of other solvents caused phytotoxic effects. Overdosed low branches were injured even by the best formulations. Careful use of good formulations reduced such injury to negligible proportions. Car spotting is a real headache. At 1 gallon per minute output rate (2 No. 96 nozzles, 40 p.s.i.) large droplets fall out, and pit wax finish on cars. Only a new waxing job will correct the trouble.

Dieldrin

During 1955 and 1956, 6% dieldrin emulsion was also tested in the dormant applications. Methods of application and amount per tree were similar to the DDT work. *The most striking result was much better subsequent overall appearance of the trees.* Reasons were several. *Most important, the vagrant Eriophyid mites were well controlled.* Eriophyid discoloration was negligible on dieldrin sprayed trees, and counts of Eriophyid mites proved populations to be much lower than on either DDT sprayed trees or on unsprayed trees.

Elm leaf beetle control was excellent following the dieldrin dormant spray. These dieldrin dormant trees were as well or better protected than trees sprayed in foliage with the best DDT mixture at the most opportune time. Leafhopper injury was considerable on unsprayed trees in 1956. Dieldrin dormant trees were well protected against these pests.

Will dieldrin control the bark beetles? The answer is as yet incomplete. *Evidence to date is that 6% dieldrin is not as effective as 12½% DDT.* Laboratory tests have shown that the dieldrin deposits on twigs gave high kills of bark beetles. In some plots, however, protection was less than that afforded by DDT. Further work is needed. At the present time 6% dieldrin is more expensive than 12½% DDT. However,

the very excellent appearance of the dieldrin treated elm trees would indicate possible use on privately owned trees of high ornamental or sentimental value.

Concluding on the place of dieldrin in elm spray schedules: Dieldrin at 1% to 3% in foliar mist blown applications is excellent for elm leaf beetle control. *At the lower dosage rates it is competitive in cost with DDT, and about equal in effectiveness.* Dieldrin dormant spray is not proven as a control for elm bark beetles. However, dieldrin dormant sprayed elms are outstanding in excellent general foliage appearance.

Credit for most of the work involved in these studies should go to the graduate students on the Cornell University Entomology Department Dutch Elm Disease Project. These men were Dr. Dan Clower, Mr. Gordon Nielsen, Mr. Grover Dowell, and Dr. Hugh Thompson. Mr. Richard Pendleton, Sunrise Spraying Service, Ithaca, was most cooperative in applying some of the treatments. The excellent cooperation of the Parks and Public Works Departments of Mechanicville, Ithaca, Mamaroneck, and Albany is acknowledged.

NATIONAL ARBOR DAY
"THE LAST FRIDAY IN APRIL"

SHARPEN YOUR SAW CHAINS

ACCURATELY QUICKLY AND EASILY

WITH THE
FORESTER PRECISION SAW CHAIN SHARPENER

- Chains Cut Better Than New
- Saves In Replacement Cost
- Saves In Sharpening Cost
- Saves In Labor Cost

Sharpens every cutter to a razor sharp, mirror finish with exactly the same horizontal and vertical angles. Chains last 3 to 5 times longer because precision sharpening removes less metal. Diamond hard carbide burrs will outlast files 15 to 1 and can be resharpened several times so that they are as good as new.

WRITE FOR INFORMATION AND PRICES

FORESTER MANUFACTURING COMPANY
10 McCue Avenue, Lockport, N. Y.

FORESTRY
HORTICULTURE
ARBORICULTURE
BOTANY . . .

. . . if you're interested in these subjects, you'll be interested in our firm which is over 20 years young.

By observing effects of gas leaks on soil and vegetation, we conserve gas for companies in 45 states and Canada.

The opportunity is here if you have the background and like to travel. Write, outlining your education and experience and we will arrange an interview.

Heath Survey Consultants, Inc.
572 Washington Street
Wellesley 81, Mass.

EASIER CUTTING here . .
PORTER PRUNERS

DESIGNED . . . to cut better
BUILT . . . to do work easier
MADE . . . to last longer

Whatever your pruning needs, there's a BETTER PORTER PRUNER to do the work for you and to do it quicker, easier and more efficiently. Heat-treated, alloy tool steel blades stay sharp longer — special design allows clean, close cutting even in difficult crotches. There's a big time-saving dividend in PORTER PRUNERS.

TYPE M TREE TRIMMER

Professional treemen collaborated on the design of this tool for line clearing. They knew what they wanted — we gave it to them. All steel head with steel hook to eliminate bending, twisting and breaking. Pivot bolt stays tight. Spring cannot catch or interfere with cutting. Capacity 1" green wood.

FORESTER BRUSH CUTTER

A heavy-duty tool that puts an end to heavy-duty work. Leaves flush, flat-topped stumps. Excellent for root cutting. The only pruner with exclusive slide shift that gives EXTRA power in an instant, even in the middle of a cut. Two models — cuts up to 2" green wood.

SEE THE COMPLETE PORTER PRUNER LINE

Our free illustrated catalog shows all types of pruners — one-hand, two-hand, tree pruners, pole saws, etc.

SEND FOR YOUR FREE COPY TODAY!

H. K. PORTER, INC., Somerville 43, Massachusetts

MEANS LESS WORK here . .

Largest Cultivated Tree In The U. S.—Cover Picture

In 1865 a Captain Aram who had established one of the first nurseries in California planted the tree that is the subject of our cover picture for this issue.

Jim Clarke owner of the W. B. Clarke Nursery in San Jose, California is the owner of the tree. It is located at the corner of Schallenberger and old Oakland Highway. Jim's home can be seen in the lower left corner. The tree is a Blue Gum (Eucalyptus globulus) a native of Australia.

A short time ago measurements were made by people from the University of California. It measures 34 feet, 5 ft. above ground level and its height was estimated at 150 ft. It was definitely determined to be the largest Eucalypt in Western North America and Jim claims it is the largest cultivated tree in the United States

Its great size and excellent condition is unquestionably due to the wonderful 25 foot deep loam soil and ample water.

The picture was taken on a chilly day this last January. Jim is shown to the left of the huge trunk.

Ed Scanlon.

Now Don't Put the Blame on Pigeons

PORTLAND, Me., Sept. 22 (UP)—Tree surgeon George W. Goodall received hundreds of calls from householders worried about trees under which they park their cars.

Each caller told Goodall that the top of his car was covered with a stickiness. Many wanted to know if Dutch Elm disease were to blame.

Not at all, Goodall told them. He said the culprit was the aphis, a sloppy little leaf-sap sucking insect, and the lack of rain was responsible for making his eating habits so noticeable.

The tree expert said the aphis taps a leaf and swallows some of the leaf sap, but the rest just courses over him and drip to the ground, or, on any automobiles parked under the tree where he banquets.

Normal rains usually wash off cars every few days in the summer, but during dry spells the sap just drips and drips on cars to stay—unless the motorist gets out the garden hose.

PLANT ROOTS, although extremely delicate, accomplish amazing feats. They bore through the soil with a corkscrew motion. If they encounter obstacles such as a stone, they can work around it, push it aside, or sometimes split it open by secreting acids that dissolve the stone.

INTERESTING NEWS ITEM from Nottingham, England, reports that the famous Sherwood forest, where Robin Hood supposedly had many of his escapades, is being severely damaged by weevils. More than 40,000 trees have been destroyed or damaged severely. The news item did not say what kind of weevils were causing the destruction.

All Models Of

FANNO SAWS

Disston, Atkins and Seymour Smith pruning saws and shears. Safety equipment for tree work.

COMPLETE LINE OF TREE SURGERY SUPPLIES. WRITE FOR CATALOGUE.

Fruit Growers of Chester County, Inc.

WEST CHESTER, PA.

Greatest rate-of-work capacity of any mist sprayer!

the John BEAN ROTOMIST 100-E

delivers **28,000 CFM*** *of air spray at* **400 lbs. pressure**

Only the John Bean Rotomist can give you this combination — the drive of straight-through, big volume air flow from an axial flow fan *plus* a plunger-type pump designed to handle all types of spray materials. You get fast tree-top "reach" and thorough coverage — the capacity that's needed for an effective and economical shade tree protection program. Note these features of the Rotomist 100-E: • Effortless hydraulic 360° rotation and 110° vertical pivoting. • Oil bath pump with Sapphite lifetime cylinders • Fully enclosed transmission • mechanical and jet agitation in new "mixing-bowl" shaped tank.

* Recent recommendations by U. S. Department of Agriculture specialists call for equipment of 25,000 c.f.m. or more for effective Dutch Elm disease control.

AVAILABLE IN SKID OR TRAILER MOUNTINGS

Both the Model 100-E Rotomist and the economical, medium capacity Model 75-E are available with skids for mounting on a truck bed or as mobile, trailer-mounted units.

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

John BEAN LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

Please send me: ( ) New 1956 Rotomist catalog. ( ) Spray Concentration and Gallonage Data. ( ) Mist Sprayer Comparison Table. ( ) Mosquito Control Costs

ATTACH COUPON TO CARD OR LETTERHEAD—GIVE NAME AND ADDRESS

"Full Circle Coverage"

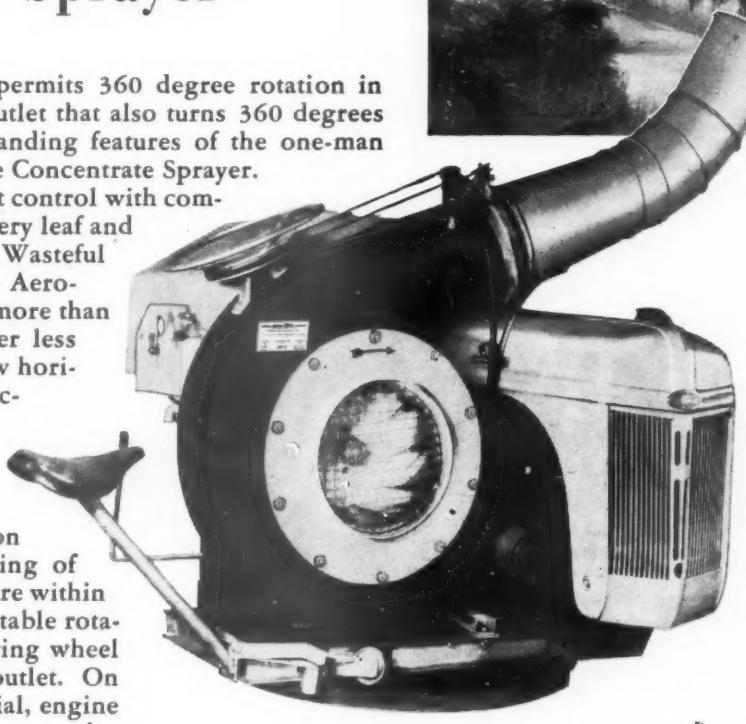
In Shade Tree Pest Control with the

HARDIE AERO-MIST®

Shade Tree Sprayer

A turret-type mount which permits 360 degree rotation in either direction and an air outlet that also turns 360 degrees in either direction are outstanding features of the one-man Hardie Aero-Mist Shade Tree Concentrate Sprayer. Ease and speed in tall tree pest control with complete, uniform coverage of every leaf and bark surface are assured. Wasteful "run-off" is eliminated. The Aero-Mist sprayer cuts spray cost more than 50% as compared with other less efficient methods. Tests show horizontal coverage—and satisfactory mosquito kill—up to 1000 ft.

Hardie high pressure pump equipment and propeller type positive agitation assure atomization and mixing of spray material. All controls are within easy reach of operator. Turntable rotation is semi-automatic. Steering wheel control is provided for air outlet. On and off valve for spray material, engine throttle control and clutch are under the operator's hand. Brake locks the machine in any desired position.



The powerful, big volume air stream carries the spray to the crown of the tallest trees, agitates the foliage and assures adequate coverage of every leaf and bark surface.

" a whale of a sprayer!"

Two sizes meet every need

Model L80—8000 cu. ft. air per minute at 150 mph though 10 inch outlet.
53 gal. steel tank. Weight 1500 lbs.

Readily transported on motor truck or trailer.

Ask your dealer • Use the coupon.

HARDIE
PEST CONTROL EQUIPMENT
• SOLD AND SERVICED ALL OVER THE WORLD

The Hardie Manufacturing Company,
Hudson, Michigan.
3825 Santa Fe Ave., Los Angeles 58, California
1435 N.W. Northrup St., Portland 9, Oregon.

Please send catalog.

Name_____
Address_____
City_____ State_____
I am especially interested in_____
_____

Authors and Books

The following books may be ordered from TREES Magazine, 7621 Lewis Road, Olmsted, Falls, Ohio.

MANUAL OF THE HAWTHORNS of Cook and Du Page Counties of Illinois, by Kendall Laughlin. Published by the author, Kendall Laughlin, P. O. Box 7912, Chicago 80, Ill. 76 pgs., illus. $3.00.

Because the genus Crataegus offers endless possibilities for new street and ornamenental trees this book should be studied by any nurseryman or City Arborist interested in bringing good trees to the public and to our streets. Because it deals primarily with the species found in the difficult Chicago area, it presents trees which should have a wide range of winter and summer hardiness.

We have not scratched the possibility surface in this genus of small, colorful, tough trees and for that reason the author is to be commended for selecting and describing the many species he has.

The book is nicely bound and done in offset. The author financed the publication himself, for which he draws our thanks and the hope that it will have the wide circulation it deserves.

Contained are twenty-three halftones; six tables, including indexes; a list of synonyms, and a valuable table of maximum sizes, growth rates and ratios of height to spread.

The Commonwealth of Massachusetts
University of Massachusetts
Amherst

December 20, 1956

Mr. Ed Scanlon
7621 Lewis Road
Olmsted Falls, Ohio

Dear Ed:

In the past, the Administration restricted the number of freshmen in the Arboriculture course to twenty, and very few of these could be out-of-state students.

Several weeks ago this restriction was removed and we can take as many qualified students as apply, regardless of whether they are residents or not. In the past we had to turn down many qualified out-of-state fellows, so by now the general opinion is that we do not allow non-residents to come.

Sincerely,
Gordon S. King
Assistant Professor
of Arboriculture

WANTED

Tree Surgeon with experience and ability to operate and manage established tree business in Ohio industrial area on a percentage basis or will sell up to 50% of business and equipment. Potentiality for expansion of business unlimited. Reason for above, owner has other interests.

For information, write
Trees Magazine,
Box MHO, Olmsted Falls, Ohio

FOR SAFETY
spray with Pratt's

Pratt's Sprays are formulated for use in mist blowers or hydraulic sprayers to give the greatest degree of safety and effectiveness for shade trees and evergreens.

PRATT'S 25% DDT (petroleum solvent) has created an enviable reputation for safety to the trees, even under conditions of heavy application. Correctly balanced for long residual toxicity. This material will stand freezing weather.

PRATT'S X 25% DDT (xylene solvent) is manufactured to meet certain City or State specifications for Dutch elm disease spraying. Made according to U.S.D.A. formulations, with or without white oil.

SCALECIDE—The oldest and best known dormant oil spray. Contains 96% highly refined, highly paraffinic dewaxed oil. Use Scalecide for the control of scale, aphis, red mite, and over-wintering insects on shade trees, fruit trees, evergreens and ornamentals.

PRATT'S SUMMER SPRA-OIL— A miscible 97% white oil type summer oil. For use in the control of red spider, scale crawlers, white fly and as an effective ovicide, also used as a dormant spray for evergreens where a lighter oil is desired.

D-X INSECT SPRAY—One of the most effective non-poisonous sprays for sucking and chewing insects of shade trees as well as fruit trees. Contains rotenone, pyrethrum and piperonyl cyclonene for great effectiveness and safety.

Pratt is basic in Chlordane, Malathion, Lindane, etc.

B. G. PRATT COMPANY 204 21st AVENUE PATERSON, N. J.

FOR SALE

Myers Weed & Brush Sprayer, 500 gal. tank, mounted on tandem trailer. Used less than 50 hours. Price **$850**

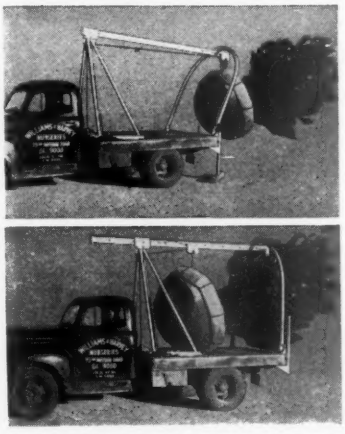
John Bean Rotomist

100 Mounted on 1954 Ford 1 Ton Dual Wheel Truck. Excellent condition. Cost New $6000. Firm Price—Complete: **$3500**

ALSO

2 Pneumatic Pruners—Miller-Robinson. 1 Pneumatic Brush Tool, 2½" Cap.—Miller-Robinson. 400' Air Hose and Automatic Oiler. All for **$250**

FUNK BROS. TREE SERVICE, INC.
P. O. Box 226 — Wooster Rd.
Ashland, Ohio — Phone 41549



Williams & Harvey Nurseries

BIG TREE MOVER

- New Light Weight
- Simpler to Operate
- Two Sizes, 6' and 7'
- Quickly Demountable
- Fits Any Standard Truck

Write for specifications and address of users near you. Six-feet mover as pictured: complete with power winch and all needed pick-up parts: F.O.B. Kansas City, Mo.. **$1,675.00**

WILLIAMS & HARVEY NURSERIES
P. O. Box 8822 Kansas City, Mo.

Patronize the Advertisers and mention TREES

"Streets Are The Show Windows of your city and TREES ARE THE DRESSING"

Globe Locusts Dress This Show Window Street In A Neat Functional Style

"Tailor Your Streets — Don't Reforest Them"

Only With Proven TAILORED TREES Can You Get Away From The Old Forest Style

Other TAILORED TREES Available This Spring

Cleveland Norway Maple	Modesto Ash	Idaho Locust
Almira Norway Maple	Littleleaf Linden	Glastonbury Thorn
Irish Norway Maple	Globe Locust	Lavalle Hawthorn
Pauls Scarlet Thorn	Double White Hawthorn	Washington Thorn
Tailored Kwanzan Cherry	Aldenham Crabapple	Globe Elm
Wineleaf Sycamore Maple	Ruby Red Horsechestnut	Cutleaf Weeping Birch

Write for Descriptive "Use Booklets" and Complete Catalog

Edward H. Scanlon & Associates

"The Tailored Tree Nursery"

7621 Lewis Rd. Phone: ADams 5-2357 Olmsted Falls, Ohio

RETURN POSTAGE GUARANTEED
Trees Magazine, 7621 Lewis Rd.
Olmsted Falls, Ohio

Postmaster: If addressee has moved and new address is known, notify sender on Form 3547, postage for which is guaranteed.

Sec. 34.66 P.L.&R.
U. S. POSTAGE
PAID
Olmsted Falls, Ohio
Permit No. 12

SAVE ON COST OF
BRUSH REMOVAL
with
ASPLUNDH CHIPPERS!

Made by tree men for tree men, only Asplundh Chippers have been *engineered, developed and proven by the largest tree company in the world.*

Now even faster and more powerful than ever, Asplundh's new design features an enlarged feed opening that increases brush consumption by 15%, a flywheel of greater diameter for more powerful chipping action. They'll chip more brush in less time than any other chipper made . . . an obvious cost-saving to you.

You benefit in many ways when you use an Asplundh Chipper. Its unique simplicity of design permits blade changes right on the job without special equipment — with less "down time", lower maintenance costs. It is the only chipper with tapered blades and wedges that insure positive locking action — absolute safety in operation.

Yes, in every way, your cost of brush disposal is less when you use Asplundh Chippers.

ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa. Dept. TI

☐ Send FREE BOOKLET,
The Modern Approach to the Brush Problem
☐ Arrange FREE demonstration

NAME .....
ADDRESS .....
CITY ..... ZONE .... STATE .....

Get complete information; free demonstration.
Clip and mail coupon today.

BY ACTUAL TEST THE FASTEST CHIPPER MADE